

## CLAIMES

1. A method for producing a color filter for an image sensor comprising:

coating a photo-curable composition containing a dye, an alkali soluble resin, a polymerizable monomer and a photo initiator on a substrate directly or with another layer therebetween and then drying the same to form a coating film, exposing a predetermined pattern on the coating film, developing the exposed coating film with a liquid alkali developer, and

irradiating the developed coating film with ultraviolet radiation while heating at a temperature of 20°C to 50°C.

2. A method for producing the color filter for an image sensor according to claim 1, further comprising heating the coating film which has been irradiated with ultraviolet radiation at 100°C to 300°C.

3. A method for producing the color filter for an image sensor according to claim 1 or 2, wherein a pixel pattern having a thickness of 3  $\mu\text{m}$  or less and a pixel size of 5  $\mu\text{m}$  or less is formed.

4. A method for producing the color filter for an image sensor according to one of claims 1 to 3, wherein, during

irradiating with ultraviolet radiation, ultraviolet radiation is irradiated on the developed coating film under heating at 25°C to 40°C.

5. A method for producing the color filter for an image sensor according to one of claims 1 to 4, wherein, during irradiating with ultraviolet radiation, the wavelength of the Ultraviolet radiation is from 200 to 300 nm.

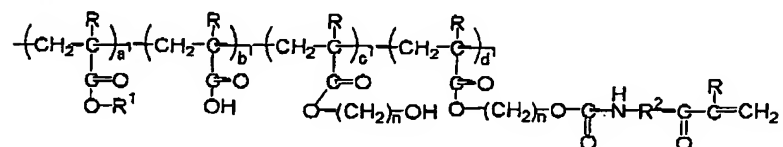
6. A method for producing the color filter for an image sensor according to one of claims 1 to 5, wherein, during irradiating with ultraviolet radiation, the irradiation time of the ultraviolet radiation is from 10 to 180 sec.

7. A method for producing the color filter for an image sensor according to one of claims 1 to 6, wherein the alkali soluble resin contains a molecular chain having a polymerizable double bond in the molecule.

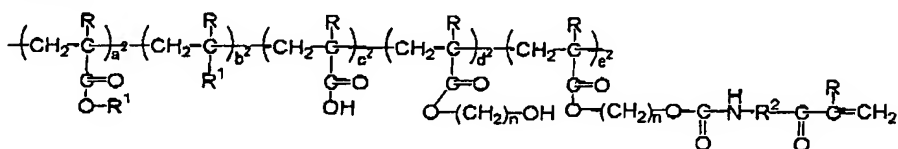
8. A method for producing the color filter for an image sensor according to one of claims 1 to 6, wherein the molecular chain is present on the side chain and the molecular chain has at least one member selected from an acryloyl group, a methacryloyl group, and an allyl group.

9. A method for producing a color filter for an image sensor according to one of claims 1 to 6, wherein the alkali soluble resin contains at least one of the (meth)acryloyl groups represented by the following formula (1-1) to formula (1 to 3):

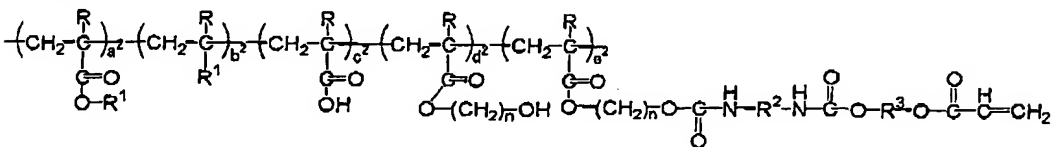
Formula (1-1)



Formula (1-2)



Formula (1-3)



wherein R represents a hydrogen atom or a methyl group, R<sup>1</sup> represents an alkyl group having 1 to 18 carbon atoms, a phenyl group having an alkyl group having 1 to 4 carbon atoms or an alkoxy group having 1 to 4 carbon atoms, an aryl group having 6 to 12 carbon atoms, or an aralkyl group having 7 to 12 carbon atoms, R<sup>2</sup> represents an alkylene group having 1 to 18 carbon atoms, a phenylcarbamate ester group having an alkyl group having 1 to 4 carbon atoms, or a carbamate ester group

having a cycloaliphatic group having 3 to 18 carbon atoms,  $R^3$  represents a linear or branched alkylene group having 2 to 16 carbon atoms;  $a^1$  to  $d^1$  in formula (1-1),  $a^2$  to  $e^2$  in formula (1-2), and  $a^2$  to  $e^2$  in formula (1-3) each represent a molar ratio (mol%) of repetitive units contained;  $b^1$  represents from 3 to 50,  $c^1$  represents from 3 to 40,  $d^1$  represents from 2 to 60, and they satisfy:  $a^1 + b^1 + c^1 + d^1 = 100$  in formula (1-1), and  $b^2$  represents from 0 to 85,  $c^2$  represents from 3 to 50,  $d^2$  represents from 3 to 40,  $e^2$  represents from 2 to 60, and they satisfy:  $a^2 + b^2 + c^2 + d^2 + e^2 = 100$  in formulae (1-2) and (1-3), and  $n$  represents from 2 to 16.